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Examiner's Amendment.*

at the predetermined angle so that the angled end face is generally parallel to a reference mirror component of the interferometric microscope 10. This generally parallel orientation is required to obtain a suitable interference pattern and measurement of the connector geometry. Any variation from the predetermined angle can be ascertained and the total angle of the end face can be calculated. In a third embodiment, guide pins 54a'', 54b'' have a "barbell"-shaped profile in which the pins 54a'' and 54b'' have a relief 60 cut into the middle portion along the length of the pins 54a'', 54b'', as illustrated in Fig. 5D. The relief 60 allows connectors 30 to be more easily installed over pins 54a'' and 54b'' and provides for a straighter line contact between the tip and base of the pins 54a'', 54b'' and the internal bore of the guide holes 32.

10 [0035] Referring to Figs. 4A-4C, there is shown a second preferred embodiment of a fixture in accordance with the present invention. In the second preferred embodiment, a female fixture 140 includes the base plate 42 of the male fixture 40, but replaces the aperture plate 50 with a female aperture plate 150. The female aperture plate 150 is provided with an aperture 52 similar to the aperture 52 of the aperture plate 50, but is also provided with guide pin holes 154a and 154b, rather than the guide pins 54a and 54b of the aperture plate 50. Thus, the female fixture 140 is adapted to receive the male connector 20. The structure and operation of the female fixture 140 is otherwise similar to the structure and operation of the male fixture 40.

15 [0036] Referring to ~~Fig. 7~~, the above disclosed male and female fixtures 40, 140 and microscope 10 of the present invention are preferably used in accordance with a method generally designated 70. The method 70 provides for obtaining measurements of dimensional characteristics of the male and female connectors 20, 30, respectively, and determining a calibration factor for the fixtures 140, 40, respectively, based upon those measurements. The method 70 comprises seven steps as shown in ~~Fig. 7~~ *← replace with Fig. 6*

20 [0037] At a first step 72, the user provides an interferometric microscope 10 having a fixture such as the male fixture 40 adapted to receive a female connector 30 or a female fixture 140 adapted to receive a male connector 20.

[0038] At a second step 74, the user installs a female connector 30 or a male connector 20 into the male fixture 40 or the female fixture 140, as appropriate.

25 [0039] At a third step 76, the user obtains a first set of measurements of the dimensional characteristics of the connector 20 or 30. The measurements are conventional in the art of multi-fiber optical connectors, and are obtained in a manner well-known in the art of interferometric microscopes.